U.S. Antarctic Marine Living Resources Program

2012-2013 Weekly Field Reports
Cape Shirreff, Livingston Island

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The U.S. AMLR Cape Shirreff Field Camp was closed on 26 February 2013, bringing an end to the season that began on 8 November 2012. On 25 February, the original closing date of 27 February was accelerated by 24 hours due to impending poor weather conditions. At 6:00 AM the R/V *Laurence M. Gould* approached the Cape and established radio communications. The weather conditions were windy, but workable with a 4-5 foot sea swell and winds averaging 20 knots. Two zodiacs were launched around 6:45. The *L.M. Gould* Marine Projects Coordinator, Skip Owen, a ship's Electronics Technician, and a zodiac operator landed to make a cargo plan for the day and the offload began immediately thereafter.

In all, 10 crew and science team members (including four zodiac operators) came ashore to assist in moving gear. Six drums of gasoline were delivered to the Cape to stock for the 2013/14 season, and approximately twelve zodiac loads of personnel, samples, gear, retrograde equipment, and trash were removed from the island. All items were successfully taken from the island. The last zodiac was aboard the ship at about 10 AM.

Among those 'items' removed were crew members James Wright, Nicole Cook, Melany Zimmerman, Michelle Goh, Dr. Jefferson Hinke, and camp leader Doug Krause. The AMLR crew worked tirelessly and very late into the final night to clean, prepare, inventory and fix camp, for which we are grateful.

We would also like to extend a heartfelt thanks to the Captain and crew of the R/V *Laurence M. Gould* and the United States Antarctic Program (USAP) support staff for a safe and efficient camp closure.

The AMLR crew will now assist with the closing of Copacabana Field Camp, and process the remainder of Antarctic fur seal scats in the lab on the ship. We are due back to Punta Arenas on 5 March 2013.

Science Report

Seabirds

1. On 19 February we banded 250 chinstrap penguin chicks. In the future, resights of these bands will help us determine cohort survival and if they breed these penguins will become part of our known age reproduction study.

2. On 20 February we banded and weighed 200 gentoo chicks. These weights are taken at 85 days from gentoo mean clutch initiation to assess chick condition. The average mass of gentoo chicks was 3906 g, 9% less than the 15 year average of 4290 g. The heaviest chick weighed 5500 g and the lightest weighed 1900 g.

3. Chinstrap chicks began to fledge this week. From 21 February to 25 February we weighed fledglings immediately before their departure into the ocean. This measurement allows us to assess their condition at fledging. In total, we weighed 150 fledglings. The average mass was 3135 g, only 1% less than the 15 year average of 3151 g. The heaviest fledgling weighed 3850 g and the lightest weighed 2350 g.

4. We continued to search for and recover instruments from chinstrap and gentoo penguins that we deployed last week. Despite extensive search effort, we were unable to recover three PTT and three TDR instruments prior to departing for the season. Those instruments are presumed lost.

5. In other penguin species news, an adult macaroni penguin has molted among chinstraps and an adult rockhopper penguin briefly visited one of the chinstrap colonies before departing.

6. Of the 19 brown skua territories that we are monitoring, 11 have failed and eight are still active with one chick each. We have completed 48-day measurements of four chicks. The 48-day measurements, which include measurements of bill and tarsus dimensions as well as body weight, are used to determine sex and assess general condition at fledging age.

7. A significant portion of the week was spent cleaning and providing general maintenance to the bird blind, along with compiling and proofing all seabird data. Remaining data entry and proofing will be completed while at sea en route to Punta Arenas, Chile.

Pinnipeds

8. Of the original thirty CCAMLR attendance Antarctic fur seal females, six had a surviving pup at the conclusion of the study, which is half as many as last year.

9. Twenty of the thirty attendance study females completed at least six trips to sea before they lost their pup. Of the six females with pups at the end of the season, two completed 14 trips. Trip durations are as follows: first trip: 3.97d (s.d.=1.97, n=26), second trip 4.79d (s.d.=2.22, n=25), third trip 4.77 d (s.d.=1.38, n=25), fourth trip 4.36d (s.d.=1.55, n=25), fifth trip 4.74d (s.d.=1.26, n=24), sixth trip 4.93d (s.d. = 1.05, n=20). The maximum trip duration was 8.91 days.

10. We concluded monitoring our adult tagged female population and mother pup pairs to get a measure of reproductive success and loss of pups due to leopard seal predation. Our estimate for pup loss to leopard seal predation for the 2012/13 season was 67.9%.

11. Systematic surveys of defined areas of the Cape for the 500 per annum fur seals tagged as pups were finished this week. On February 25 we completed the deployment of 400 sequentially numbered tags on fur seal young of the year in order to continue this demographic monitoring.

12. On February 22 we completed our fourteenth weekly Cape-wide phocid census. We counted 41 southern elephant seals, 11 Weddell seals, and nine leopard seals.

13. As of 25 February we have recorded 352 sightings of 36 tagged leopard seals. We have recorded an additional 90 sightings of untagged or otherwise unidentified seals, which have been added to our photo-identification database. Twenty-five of the 36 tagged seals returned from previous years and the other eleven we have tagged this year.

14. This season we successfully completed sixteen leopard seal captures on nine animals. All eight GPS location instruments have been recovered. These instruments together with stable isotope analysis of blood will help us understand leopard seal foraging behavior and quantify their impact on Antarctic fur seals and penguins.

15. In all, five overwinter GLS tags have been recovered from leopard seals. During the 2011/12 field season, 10 GLS tags were deployed on leopard seals in order to extend our understanding of over-winter leopard seal movements and breeding phenology.

16. One calm afternoon last week allowed us to complete this year's hexacopter operations. We'll head home with a successful haul of over 4,000 aerial images of the Cape to help us study nutritive condition in leopard seals and map/census penguin and fur seal colonies.

Weather

17. For the week ending on 24 February, winds averaged 9.4 mph with a maximum of 44 mph. The predominant wind direction was west (51.9%). The average temperature was 1.1° C with a low of - 2.5° C. Mean daily solar radiation was 14,771 Wm^2.

Camp

18. Closed.

Presented by Doug Krause and Jefferson Hinke, with assistance from Mike Goebel, Nicole Cook, Jay Wright, Melany Zimmerman, and Michelle Goh at the Cape Shirreff Field Camp, Livingston Island, South Shetland Islands, Antarctica